# Non-US Cites

## PATENT ABSTRACTS OF JAPAN

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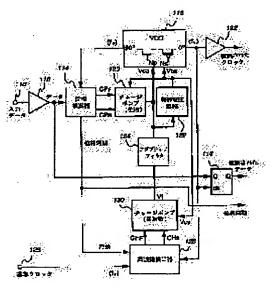
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#### (54) PHASE LOCKED LOOP

#### (57) Abstract:

PROBLEM TO BE SOLVED: To provide the phase locked loop(PLL) with small jitter and power consumption that is operated even with an input signal of a non-periodic structure such as data. SOLUTION: The PLL is provided with a voltage controlled oscillator(VCO) 118, charge pumps 120, 130, a phase detector 114 and a frequency detector 128. The phase detector 114 detects a phase difference between an input signal and a VCO signal. A frequency difference between the input signal and the reference signal is detected by the frequency detector 128 independent of the phase detector 114. In a process to attain phase synchronization, the phase detector 114 and the frequency detector 128 are operated simultaneously. When the input signal is in existence, the VCO signal is phase-locked to the input signal. When no input signal is in existence, the VCO 118 is frequencylocked to a large number of



desired bit speed. Thus, in the case that an input signal is received successively for a period without the input signal, the PLL assists considerably quick phase locking with reliability by avoiding extreme reaction of the system.

### LEGAL STATUS

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reference signals to keep a frequency close to a

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